

AD-A189 737 **COPY**

2

REPORT DOCUMENTATION PAGE

1a. SECURITY CLASSIFICATION UNCLASSIFIED		1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY		3. DISTRIBUTION / AVAILABILITY OF REPORT Approved for public release; distribution unlimited.	
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE		5. MONITORING ORGANIZATION REPORT NUMBER(S) AFOSR-TR- 87-1732	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)		7a. NAME OF MONITORING ORGANIZATION Air Force Office of Scientific Research	
6a. NAME OF PERFORMING ORGANIZATION Gordon Research Conference	6b. OFFICE SYMBOL (If applicable)	7b. ADDRESS (City, State, and ZIP Code) Bldg 410 Bolling AFB, DC 20332-6448	
6c. ADDRESS (City, State, and ZIP Code) University of Rhode Island Kingston, RI 02881		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER AFOSR-87-0314	
8a. NAME OF FUNDING / SPONSORING ORGANIZATION AFOSR	8b. OFFICE SYMBOL (If applicable) NE	10. SOURCE OF FUNDING NUMBERS	
8c. ADDRESS (City, State, and ZIP Code) Bldg 410 Bolling AFB, DC 20332-6448		PROGRAM ELEMENT NO. 61102F	PROJECT NO. 2306.
		TASK NO. A2	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) 1987 Gordon Research Conference on Corrosion			
12. PERSONAL AUTHOR(S) Dr Meier			
13a. TYPE OF REPORT Final Report	13b. TIME COVERED FROM 19-24 July 1987	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT 4
16. SUPPLEMENTARY NOTATION			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	
19. ABSTRACT (Continue on reverse if necessary and identify by block number) The 1987 Gordon Conference on Corrosion was held at Colby-Sawyer College, New London, N. H. during the week of July 19 to 24. The conference program (attached) covered a cross-section of important areas in the field of high temperature corrosion: transport in oxide films, microchemical analysis of oxide films, stresses in oxide films and films adherence, effects of erosion and applied stresses on oxidation, hot corrosion, oxidation of titanium and the refractory metals, and oxidation of silicon and silicon-containing alloys. In addition to the lectures a significant number of poster papers (list attached) were also presented.			
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT ☐ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL HAGER		22b. TELEPHONE (Include Area Code) (202) 767-4933 22c. OFFICE SYMBOL NE	

DTIC
ELECTE
JAN 05 1988
S
D

SUMMARY OF THE
1987 GORDON RESEARCH CONFERENCE ON CORROSION

→ The 1987 Gordon Research Conference on Corrosion was held at Colby-Sawyer College, New London, N.H. during the week of July 19 to 24.

The budget for the Conference totalled \$22,800 of which \$10,800 was provided by the Board of Trustees of the Gordon Research Conferences and \$3,000 each was provided by the Office of Naval Research, Air Force Office of Scientific Research, Electric Power Research Institute, and U.S. Department of Energy (Fossil Energy Program). (Direct support to graduate students from the UK was also provided by The Institute of Metals).

The funds were used to assist speakers, discussion leaders, graduate students, and a number of experts from the U.S. and overseas with their travel expenses and/or fixed Conference Fee. Without supplementary funds many research scientists would not have been able to attend and the grants from ONR, AFOSR, EPRI and DOE are gratefully acknowledged.

The conference program (attached) covered a cross-section of important areas in the field of high temperature corrosion: transport in oxide films, microchemical analysis of oxide films, stresses in oxide films and film adherence, effects of erosion and applied stresses on oxidation, hot corrosion, oxidation of titanium and the refractory metals, and oxidation of silicon and silicon-containing alloys. In addition to the lectures a significant number of poster papers (list attached) were also presented. Most of these posters were prepared by graduate students.

The conference had 119 participants with 90 coming from the U.S. and 29 from 7 other countries. A copy of the Registration List is attached.

The discussions following each formal presentation and regarding the poster presentations were spirited and many attendees commented on the value they derived from the Conference. It was a pleasure to organize the 1987 Gordon Conference on Corrosion.

G. H. Meier

G. H. Meier

Chairman, 1987 Gordon Conference on Corrosion

November 12, 1987

Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

GORDON RESEARCH CONFERENCES
CORROSION

July 20-24, 1987
Colby-Sawyer College, New London, NH

Gerald H. Meier, Chairman
David J. Duquette, Vice Chairman

Monday, July 20 (Morn.)

Transport in Oxides

Discussion Leader:

D. J. Duquette
RPI

"Transport in Oxide Films"

A. Atkinson
AERE, Harwell
England

"Cation Grain Boundary Transport
in Cr_2O_3 and Y-doped Cr_2O_3 "

W. E. King and J. H. Park
Argonne National Lab.

Monday, July 20 (Eve.)

Microchemical Analysis of Oxide Films

Discussion Leader:

W. W. Smeltzer
McMaster University
Canada

"Effects of the Segregation of
Impurities at Oxide Grain
Boundaries on Oxidation
Mechanisms

G. J. Yurek and
K. Przybylski
MIT

"Chemical Analysis of Oxide
Scales Using Electron Energy
Loss Microscopy"

M. J. Graham and
D. F. Mitchell
National Research Council
Canada

Tuesday, July 21 (Morn.)

Stress in Oxide Films

Discussion Leader:

G. C. Wood
UMIST
England

"Growth Stress Generation in
Oxide Scales Growing by
Cation Diffusion"

B. Pieraggi
ENSCT
France

"Stress in Oxide Films"

D. Shores
University of Minnesota

GORDON RESEARCH CONFERENCES
CORROSION

July 20-24, 1987
Colby-Sawyer College, New London, NH

Tuesday, July 21 (Eve.)

Adherence of Oxide Films

Discussion Leader:

J. G. Smeggil

"Chemical Bonding Aspects of
 Al_2O_3 Scale Adhesion"

J. L. Smialek
NASA - Lewis

"Effects of Segregation and
Stress on Scale Adhesion"

K. Luthra and C. L. Briant
G. E. Corporate R. & D.

Wednesday, July 22 (Morn.)

External Mechanical Effects on Oxidation

Discussion Leader:

J. F. Stringer
EPRI

"Behavior of Oxide Scales Under
Isothermal LCF and Under
Thermal Cycling Conditions"

M. Schütze
DECHEMA
West Germany

"Interaction Between the Erosion
and Corrosion of Metals
at High Temperatures"

N. Birks
University of Pittsburgh

Wednesday, July 22 (Eve.)

Hot Corrosion

Discussion Leader:

F. S. Pettit
University of Pittsburgh

"Chemistry and Electrochemistry
of Hot Corrosion"

R. A. Rapp
Ohio State University

"Mechanisms of Vanadate-
Induced Hot Corrosion"

M. Seiersten
Center for Industrial Res.
and P. Kofstad
University of Oslo
Norway

GORDON RESEARCH CONFERENCES
CORROSION

July 20-24, 1987
Colby-Sawyer College, New London, NH

Thursday, July 23 (Morn.)

Oxidation of Titanium and
the Refractory Metals

Discussion Leader:

D. L. Douglass
UCLA

"High Temperature Oxidation
of Titanium Alloys"

C. Coddet
University of Compiegne
France

PANEL DISCUSSION: "What is the
Potential for Improved Oxidation
Oxidation Resistance of Refractory
Metal Alloys?"

J. Morral
University of Connecticut
R. A. Perkins
Lockheed Palo Alto Res Lab
R. Svedberg
Westinghouse Advanced
Energy Systems Division

Thursday, July 23 (Eve.)

Oxidation Phenomena Associated
With Microelectronic Devices

Discussion Leader:

R. P. Frankenthal
A.T.&T. Bell Labs.

"Oxidation of Si"

E. A. Irene
Univ. of North Carolina

"Oxidation of Silicides"

S. P. Murarka
R.P.I.

Friday, July 24 (Morn.)

High Temperature Oxidation of
Si-Containing Alloys

Discussion Leader:

J. B. Wagner, Jr.
Arizona State Univ.

"The Effect of Si on the
Oxidation of Fe-Cr Alloys"

F. H. Stott
UMIST
England

"Silica - How Effective is the
Third of the Triumvirate?"

M. J. Bennett
AERE, Harwell
England

GORDON RESEARCH CONFERENCES

CORROSION

TENTATIVE LIST OF POSTER PAPERS

- K. A. Allison and W. W. Smeltzer: "Growth of Oxide Films on Ni-Co Alloys"
- J. Caola, G. H. Meier, and F. S. Pettit: "The Microstructural Characteristics of a CoCrAlY Overlay Coating during the Initial Stages of Hot Corrosion"
- R. Cerchiara, F. S. Pettit, and G. H. Meier: "Corrosion in $\text{SO}_2/\text{O}_2/\text{SO}_3$ Mixtures"
- S. L. Chang, D. M. Rishel, N. Birks, and F. S. Pettit: "Interactions between Erosion and Corrosion Processes at Elevated Temperatures"
- J. L. Corkum and W. W. Smeltzer: "Influence of Si on the High Temperature Oxidation of Fe-Al-Si Alloys"
- C. M. Cotell and G. J. Yurek: "Effects of Yttrium on the Growth Mechanisms of Cr_2O_3 Films at High Temperatures"
- J. K. Doychak: "The Development of Alumina Scales on NiAl Alloys"
- J. Eldridge: "The Oxidation of Aluminum"
- J. Glascott and D. G. Lees: "The Effect of Hydrogen Annealing on Oxide/Metal Adhesion"
- P. Y. Hou and J. Stringer: "Ion Implantation Effects on Cr_2O_3 Growth"
- S. Y. Hwang, G. H. Meier, and F. S. Pettit: "The Low Temperature Hot Corrosion of CoCrAlY - Effects of pSO_3 and Temperature"
- G. M. Kim, E. A. Gulbransen, and G. H. Meier: "Corrosion of Ferrous Alloys"
- Y. K. Kim, and G. J. Yurek: "Segregation of Sulfur to Grain Boundaries in Cr_2O_3 Films Formed on Fe-Cr Alloys"
- D. Larsen: "Parabolic Rate Constants for NiO Growth at Intermediate Temperatures"
- D. G. Lees, P. C. Rowlands, and A. Brown: "The Use of Scanning SIMS to Study Oxide Growth Mechanisms"
- M. Maloney and G. J. Yurek: "Oxidation Resistance of Novel Rapidly Solidified Alloys"
- K. F. McCarthy, J. C. Hamilton, and W. E. King: "Oxidation of Fe-Cr Alloys; In-situ Phase Identification"

- G. H. Meier, F. S. Pettit, A. Ashary, G. M. Kim, and J. Caola:
"Oxidation of FeCrAl Alloys Containing Oxygen-Active
Elements"
- K. Przybylski, S. Basu, and G. J. Yurek: "High Temperature Oxidation
and Oxidation/Sulfidation of Rapidly Solidified Stainless
Steel"
- K. Przybylski and G. J. Yurek: "Mechanisms of the Oxidation of
Commercial Oxide-Dispersion-Strengthened Alloys"
- J. Schaeffer: "Diffusion Aluminides"
- J. Shen: "Rare-Earth Effects in Oxidation"
- J. Smialek: "Effects of Sulfur Content on Scale Adhesion"
- J. B. Wilkinson, D. G. Lees, and S. Brooks: "A SIMS Study of the Growth
Mechanism of Chromia at 950°C"

GORDON RESEARCH CONFERENCES

Corrosion

July 19 - 24, 1987

Colby Sawyer College, New London, NH

Armanet, Francois Univ. of Compiègne BP 233 Compiègne, 60206 FRANCE	Best 203	Cerchiara, Rocco Univ. of Pittsburgh 848 Benedum Hall Pittsburgh, PA 15261	Best 306
Armanet, Colette (Guest of Francois Armanet)	Best 203	Chen, Ming-Feng UCLA 6531 Boelter Hall Materials Sci & Eng. Dept. Los Angeles, CA 90024	Best 207
Atkinson, A. Harwell Laboratory Materials Development Division Building 552 Didcot, Oxon OX11 0RH UNITED KINGDOM	Best 003	Cheng, Chann Argonne Nat'l Lab. MSD-212 Argonne, IL 60439	Bu 314
Basu, Soumendra M.I.T. 8-103 77 Massachuse-ts Ave. Cambridge, MA 02139	Best 303	Cheng, Chunqing Univ. of Pittsburgh 848 BEH Dept. of Material Sience & Engineering Pittsburgh, PA 15261	Best 313
Bennett, M.J. Harwell Laboratory Materials Development Division, B.393 Harwell, Didcot OX11 UNITED KINGDOM	Bu 218	Chiang, K.T. Lockheed Palo Alto Res. Lab. 3251 Hanover St. 0/93-10 B/204 Palo Alto, CA 94304	Best 207
Berenger, Gerard Univ. of Compiègne BP 233 Compiègne, 60206 FRANCE	Best 307	Coddet, Christian U.T.C.S. BP 449 Belfort, Cedex, 90008 FRANCE	Best 307
Birchenall, C. Ernest Univ. of Delaware Dept. of Chemical Engineering Newark, DE 19726	Best 205	Condon, James Martin Marietta Energy Systems Inc. Oak Ridge Y-12 Plant PO Box y, Bldg. 9202, MS 3 Oak Ridge, TN 37831	Best 219
Birks, Neil Univ. of Pittsburgh Mat Sci & Eng Dept. 845 Benedum Hall Pittsburgh, PA 15201	Best 001	Congdon, James E.I. DuPont / SRL C105/773-A Aiken, SC 29808	Bu 316
Bornstein, Norman United Technologies Res. Ctr. Silver Lane MS# 22 East Hartford, CT 06178	Bu 306-A	Corkum, Jeffrey McMaster Univ. Dept. of Metallurgy & Mat. Sci. 1280 Main St. W. Hamilton, Ontario, L8S 4L8 CANADA	Best 209

(2)

Cotell, Catherine M.I.T. Room 8-103 77 Massachusetts Ave. Cambridge, MA 02139	Best 210	Frankenthal, Tibie (Guest of Robert Frankenthal)	Best 102
Coula, John Univ. of Pittsburgh 848 Benedum Hall Materials Sci. & Eng. Dept. Pittsburgh, PA 15261	Best 314	Garner, Andrew Paprican 570 St. John's Blvd. Point Claire, Quebec, H9R 3J9 CANADA	Bu 312
DeCrescente, M.A. United Technologies Res. Ctr. Silver Lane MS #22 East Hartford, CT 06178		Gibbon, Donald Calgon Corp. Box 1346 Pittsburgh, PA 15230	Bu 305
Douglass, Dave UCLA 6531 Boelter Hall Los Angeles, CA 90024	Bu 304	Giggins, Charles Pratt & Whitney Div. of United Tech. Materials Eng. & Res. Lab. M/S 114-41 400 Main St. East Hartford, CT 06108	Best 205
Doychak, Joe NASA Louis Research Center, S. Technology Cleveland, OH 44135	Best 003	Gleeson, Brian U.C.L.A. Materials Dept. 6531 Boelter Hall Los Angeles, CA 90024	Best 211
Duquette, D.J. Materials Eng. Dept. R.P.I. Troy, NY 15261	Best 104	Grabke, Hans Max Planck Inst. Fur Eisenforschig Dusseldorf D-4000 GERMANY	Bu 307
Devan, Jack Oak Ridge Nat'l Lab. P.O. Box X Bldg. 4500-S, M.S. 156 Oak Ridge, TN 37831	Bu 303	Graham, Michael Nat'l Res. Council of Canada Div. of Chemistry Montreal Rd. Ottawa, Ontario K1A 0R9 CANADA	Bu 220
E'dridge, Jeffrey Nat'l Res. Council - Canada Montreal & Blair Rds. Chemistry Div. Ottawa, Ontario, K1A 0R9 CANADA	Best 005	Grobis, Iwona Case Western Reserve Univ. Dept. of Materials Sci. & Eng. Euclid Ave. Cleveland, OH 44106	Best 312
Ellison, Keith McMaster University Dept. Mat'sl Sci. & Eng. 1280 Main St. W. Hamilton, Ontario, L8S 4M1 CANADA	Best 209	Guclu, Mustafa Univ. of Pittsburgh 848 Benedum Hall Pittsburgh, PA 15261	Best 310
Frankenthal, Robert AT&T Bell Labs. Room 1D-352 Murray Hill, NJ 07974	Best 102	Hamilton, John Sandia Nat'l LABs. Div. 8342 Livermore, CA 94550	Best 113

(3)

Hobbs, Linn M.I.T. Room 13-4062 Cambridge, MA 02139	Best 211	Kim, Jintae Univ. of Michigan Dept. of Matls. Sci. & Eng. Haywood St., Dow Bldg. 2062 Ann Arbor, MI 48109	Best 215
Holcomb, Gordon Ohio State Univ. 116 W 19th Ave. Metallurgical Eng. Columbus, OH 43210	Best 213	Kim, Yong-Kil M.I.T. Room 8-103 77 Massachusetts Ave. Cambridge, MA 02139	Best 317
Hou, Peggy Lawrence Berkeley Lab. Material & Chemical Sciences Div. 62-203, 1 Cyclotron Rd. Berkeley, CA 94720	Best 204	King, Wayne Argonne Nat'l Lab. MSD-212 9700 S. Cass Ave. Argonne, IL 60439	Best 316
Hussey, Rex Nat'l Res. Council Canada Div. of Chemistry Montreal Rd. Ottawa, Ontario K1A 0R9 CANADA	Bu 308	Kofstad, Per Univ. of Oslo Dept. of Chemistry PB 1033 Blindern, NORWAY	Bu 201
Hwang, Soon Univ. of Pittsburgh 848 Benedum Hall Dept. of Material Science & Eng. Pittsburgh, PA 15261	Best 310	Lee, Kang Neung Univ. of Pennsylvania MSE Dept. 3231 Walnut St. Philadelphia, PA 19104	Non Res.
Ibidunni, A.O. AT&T Bell Labs. 1600 Osgood St., #IF-15 North Andover, MA 01845	Best 319	Lees, D.G. Oxford Univ. Metallurgy Dept. Oxford Rd. Manchester, M13 9PL UNITED KINGDOM	Best 011
Irene, Eugene Univ. of North Carolina Dept. of Chemistry 045A Chapel Hill, NC 27514	Bu 221	Li, Jingui Univ. of Pittsburgh 848 Benedum Hall Dept. of Material Science & Eng. Pittsburgh, PA 15261	Best 313
Kang, Chih-Tsung Union Carbide Corp. 1500 Polco St. Coatings Service Indianapolis, IN 46224	Best 215	Liu, Yung Argonne Nat'l Lab. Materials & Components Technology 9700 S Cass Ave. Argonne, IL 60439	Non Res.
Kim, Chang Kyung M.I.T. Room 13-4053 Cambridge, MA 02139	Best 219	Louat, N. Naval Research Lab. Code 6393 4555 Overlook Ave. Washington, DC 20375	Bu 222
Kim, Gil Moo Univ. of Pittsburgh 848 Benedum Hall Materials Science & Eng. Pittsburgh, PA 15261	Best 305	Luthra, Krishna General Electric R&D Center 1 River Road 3BG, Bldg. K1, Box 8 Schenectady, NY 12301	Best 202

(4)

Maloney, Michael M.I.T. 77 Massachusetts Ave. Room 8-103 Cambridge, MA 02139	Best 317	Murarka, S.P. R.P.I. Center for Int. Electronics Troy, NY 12180	
Maruyama, Toshio Tokyo Inst. of Technology Research Laboratory of Eng. Mat. 4259 Nagasuta, Midori Yokohama, 227, JAPAN	Best 214	Oblath, Steven E.I. DuPont Bldg. 773-A, B-117 Savannah River Lab. Aiken, SC 29808-001	Bu 309
McCarty, Kevin Sandia Nat'l Lab. Livermore, CA 94550	Best 113	O'Connell, Denis Ohio State Univ. Dept. of Metallurgical Eng. 116 W. 19th Ave. Columbus, OH 43210	Best 007
Meier, Gerald Univ. of Pittsburgh 848 Benedum Hall Dept. of Mat. Sci. & Eng. Pittsburgh, PA 15261	Best 115	Onay, Bulent Oak Ridge Nat'l Labs. Metals & Ceramics Div. M.S. 114 Oak Ridge, TN 37831	Best 309
Miller, Bob Univ. of Pittsburgh 848 Benedum Hall Dept. of Mat. Sci. & Eng. Pittsburgh, PA 15261	Best 314	Otsuka, Nobuo Ohio State Univ. Dept. of Metallurgical Eng. 116 West 19th Ave. Columbus, OH 43210	Best 009
Miller, David Ohio State Univ. Dept. of Metallurgical Eng. 116 W. 19th Ave. Columbus, OH 43210	Best 007	Padilla, Michael Ohio State Univ. Dept. of Met. Eng. Fontana Lab., 116 W. 19th Ave. Columbus, OH 43210	Best 212
Miller, Thomas Knolls Atomic Power Lab. P.O. Box 1072 Building 0-3 Schenectady, NY 12301	Best 202	Park, Jong-Hee Argonne Nat'l Lab. 9700 S. Cass Ave. Argonne, IL 60439	Best 206
Mitchell, Don Nat'l Res. Council Montreal Road Ottawa, Ontario , K1A 0R9 CANADA	Bu 203	Patiblanda, Nag Rutgers Univ. Dept. of Mech. & Mat. Sci. P.O. Box 909; College of Eng. Piscataway. NJ 08854	Bu 315
Morrall, John Univ. of Connecticut U-136 Room 111 97 N. Eagleville Rd. Storrs , CT 06268	Best 212	Patnaik, Prakash Hawker-Siddeley Canada Inc. Building M-13, NAE-NRC Montreal Road Ottawa, Ontario, K1A 0R6 CANADA	?
Morris, J.G. Univ. of Kentucky Dept. of Metallurgy Anderson Hall Lexington, KY 40506		Pemsler, Paul Castle Technology Corp. 52 Dragon Court Woburn, MA 01801	Bu 219

Perkins, Roger Lockheed Missles & Space Co. 0/93, B/204, 3251 Hanover St. Palo Alto, CA 94304	Bu 313	Sinclair, JD AT&T Bell Labs. Rm. 1D-259 600 Mountain Ave. Murray Hill, NJ 07974	
Pettit, F.S. Univ. of Pittsburgh Mat. Sci. & Eng. Dept. 848 Beh Pittsburgh, PA 15261	Best 001	Scarberry, Scott Ohio State Univ. Dept. of Metallurgical Eng. 226 W. 19th Ave. Columbus, OH 43210	Best 208
Pieraggi, B. Inst. National Polytechnique Toulouse Ens Chimie Toulouse 118 Route de Narbonne Toulouse, F-31077 FRANCE	Bu 202	Schaeffer, John Univ. of Pittsburgh 848 Benedum Hall Pittsburgh, PA 15261	Best 306
Przybylski, Kazimierz Massachusetts Inst. of Technology Dept. of Materials Science 77 Massachusetts Ave., Room 16-302 Cambridge, MA 02139	Best 303	Schutze, Michael Dechema Theodor-Heuss-Allee 25 D-6000 Frankfort/ M97 WEST GERMANY	Best 309
Rapp, Robert Ohio State Univ. Dept. of Metall. Eng. 116 W. 19th Ave. Columbus, OH 43210	Bu 202	Scully, J.C. Univ. of Leeds Leeds LS2 9JT ENGLAND	Bu 213
Ravi, V.A. Ohio State Univ. 116 W. 19th Ave. Columbus, OH 43210	Best 009	Sedriks, John Office of Naval Res. Code 1131 800 Quincy St. Arlington, VA 22217	Bu 206
Rishel, Douglas Univ. of Pittsburgh 848 Benedum Hall Pittsburgh, PA 15261	Best 305	Shen, Jianian Nat'l Res. Council Div. of Chemistry Montreal Road Ottawa, Ontario K1A 0R9 CANADA	Best 005
Sadananda, K. Naval Res. Lab. Code 6393 4555 Overlook Ave. Washington, DC 20375-5000	Bu 204	Shores, David Univ. of Minnesota 221 Church St. 112 Amondson Hall Minneapolis, MN 55455	Best 105
Saito, Yasutoshi Tokyo Inst. of Technology Res. Lab. of Engineering Materials 4259 Nagatsuta-Cho, Midori-Ku Yokohama, 227 JAPAN	Bu 205	Shores, Mrs. D. (Guest of David Shores)	Best 105
Sakon, Tadashi Arizona State Univ. Center for Solid State Science Tempe, AZ 85281	Best 201	Sims, Chester R.P.I. Mat. Eng. Dept. Troy, NY 12180	Bu 207

Singbeil, Douglas Paprican 570 St. John's Blvd. Point Claire, Quebec, H9R 3J9 CANADA	Best 111	Streiff, Roland Univ. de Provence Labo. de Chimie des Materiaux Pl Victor Hugo-Case 26 Marseille, France 13331	Bu 311
Singbeil, Helen (Guest of Douglas Singbeil)	Best 111	Stringer, John Electric Power Research Inst. P.O. Box 10412 Palo Alto, California 94303	Bu 306-B
Smeggil, John United Technologies Res. Ctr. Mail Stop 22 Silver Lane E. Hartford, CT 06108	Bu 209	Svedberg, Robert Westinghouse AESD P.O. Box 10864 Materials Tech Pittsburg, PA 15236	Best 208
Smeltzer, W.W. McMaster Univ. Dept. of Mat. Sci. & Eng. 1280 Main St. W. Hamilton, Ontario, L8S 4M1 CANADA	Bu 217	Shiu-Wing Tam Argonne Nat'l Lab Chemical Technology Division 9700 S. Cass Ave. Argonne, IL 60439	Non Res.
Smialek, James NASA Lewis Res. Ctr. 21000 Brookpark Rd. Materials Div. 106-1 Cleveland, OH 44135	Best 109	Taylor, Kathleen General Motors Research Labs Physical Chemistry Dept. 12 Mile and Mound Road Warren, MI 48090	Best 103
Smialek, Constance (Guest of James Smialek)	Best 109	Tortorelli, Peter Oak Ridge Nat'l Lab P.O. Box X M/S 156 Oak Ridge, TN 37831	Bu 211
Sommers, James Teledyne Wah Chang Albany P.O. Box 460 Albany, NY 97321	Bu 210	Verink, Ellis & Martha 706 Clopper Rd. Apt. 22 Gathersburg, MD 20878	Best 217
Srinivasan, V. Universal Energy Systems, Inc. 4401 Dayton-Xenia Rd. Materials Res. Div. Dayton, OH 45432	Non Res.	Wagner, J.B. Arizona State University PSB 255 Center for Solid State Science Tempe, AZ 85287	Bu 301
Stokes, P. Corrosion & Protection Ctr. P.O. Box 88, Sackville St. Manchester, England M60 1Q0	Best 201	Warner, Howard Westinghouse Electric Corp. Bettis Atomic Power Lab. P.O. Box 79 West Mifflin, PA 15122	Bu 212
Stott, H.H. Corrosion & Protection Ctr. P.O. Box 88, Sackville St. Manchester, England M60 1Q0	Best 013	Weber, J. R. University of Toledo Dept. of Chemistry 2801 W. Bancroft St. Toledo, OH 43606	Bu 215

Wilkinson, John Best 011
University of Manchester
Dept. of Metallurgy
Manchester, England M188WR

Wood, Graham Bu 214
Unist, Corrosion & Protection Ctr.
P.O. Box 88
Sackville St.
Manchester, England M60 1QD

Worrell, Wayne Bu 216
Univ. of Pennsylvania
3231 Walnut St.
Dept. of Materials Science
Philadelphia, PA 19104

Young, David Best 315
University of New South Wales
P.O. Box 1
Kensington, NSW 2033
Australia

Yurek, G.J. Best 216
M.I.T.
Room 4-136
Cambridge, MA 02139

Carol Yurek Best 216
(Guest of G.J. Yurek)

Zhou Chuxin Best 206
8-103 M.I.T.
77 Mass Ave.
Cambridge, MA 02139